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moted) and J. A. Gann, respectively; F. W. Lane and Philip B. Terry, organic chemistry, replacing W. J. Murray and J. W. Livingston, promoted; Arthur E. Bellis and Charles L. Burdick, theoretical chemistry, replacing B. F. Brann and Duncan MacRae, promoted; Lester F. Hoyt, water analysis, replacing W. J. Daniels; Francis H. Achard, Henry C. Harrison and Russell E. Leonard, electrical engineering, replacing D. M. Terwillinger, J. P. King and H. G. Jenks; Edgar W. Taft, military science, replacing A. J. Pastence; John P. Constable, naval architecture, replacing R. B. Pulsifer; Warren K. Green and William G. Horsch, physics, replacing Mr. Wells and Mr. Wilkins; Millard W. Merrill, electro-chemistry, replacing Mr. Gonzales; R. G. Daggett, research assistant in sanitary chemistry; George Richter and W. B. Van Arsdell, research assistants in applied chemistry; H. F. Thomson, assistant to the director of the research laboratory of electrical engineering and part-time instructor in electrical engineering; Robert E. Rogers, instructor in English; Thomas S. Holden, part-time instructor in mathematics; Clarence Hale Sutherland, instructor in civil engineering, replacing Mr. Bradbury, resigned; Ferdinand H. Pendleton, Jr., assistant in technical analysis, replacing Mr. Bishop.

#### DISCUSSION AND CORRESPONDENCE

##### THE CONSTITUENCY OF THE EXPERIMENT STATION

In a communication to *SCIENCE* for May 9, page 708, Dr. Raymond Pearl, after stating that theoretically it is a primary function of the state experiment stations to conduct researches of a fundamental character which shall be calculated to discover basic natural laws, says:

Actually, with a few rare and partial exceptions, experiment stations do nothing of the sort. On the contrary, what they do engage in is experimental work of a kind carefully calculated to make as strong an appeal as possible on the basis of its supposed "practicality" to the scientifically uneducated and uncritical farmers who make up its constituency. The experiment-station investigator in many cases (though happily not in all, as I

am able personally to affirm after five years' experience in Maine) is compelled by force of circumstance over which he has no control to supplicate the great goddess truth with one ear closely applied to the ground in order that he may catch the first and faintest murmur of "what the public wants." If he has the temerity to venture upon a piece of research for which by the most extreme sophistry no evidence of immediate practicality can be adduced, he must do the work *sub rosa* and publish the results in such place that by no possible chance can the constituency ever learn of it.

It would be impossible to pack into the same space a greater amount of error and unwarranted sarcasm than is contained in these words. We are glad that Maine is so shining an exception to the general deplorable conditions herein set forth, and the state is to be congratulated upon its possession of so brilliant an exponent of what agricultural research ought to be. When, however, he writes in this sweeping fashion regarding the conditions surrounding some forty other stations in states covering a continent, many if not most of them some thousand or more miles away, it is not strange that in evolving the material largely from his inner consciousness, he has succeeded admirably in describing what the stations are not.

I write to discuss only a single sentence of this quotation and to resent its import in justice to a constituency not likely to answer for itself in these columns.

Dr. Pearl speaks of "the scientifically uneducated and uncritical farmers" as making up the constituency of the experiment stations and as constituting a real and natural bar to high-grade work. This is a sweeping and serious indictment against a series of federal institutions working in and supported by all the states of the union.

No special superiority is claimed for Illinois, but this occasion is taken to point out that of thirty-five farmers of the state serving on the advisory boards of our experiment station I happen to know of ten who are college graduates representing the following institutions: Dartmouth, Amherst, Yale, Illinois, Iowa and Cornell. How many of the

other members of these boards are college men I do not know, as this information is merely accidental, but they constitute a goodly company. It is the judgment and the criticism of these men that this station must first reckon with, and I have found them entirely competent to judge of the scientific reliability and soundness of our experiments as well as of their practical significance; nor is it necessary to publish sub rosa the better product of our laboratories.

These men are selected not by the station itself, but by the farmers' organizations of the state, and it is fair to assume that as time goes on the men nearest the station and its work will be college trained. In a few days this university will graduate nearly a hundred men from a four years' scientific course in agriculture. By the ratio of the past, fifty-five per cent. of these graduates will go at once to their farms, where, with even a larger number of men who have not fully completed the course and with a still larger number graduated from other colleges, they will constitute a rapidly increasing constituency trained not only in agriculture as a business, but in scientific methods of study. It is this class of men and the colleges which trained them that are in truth covered by what Dr. Pearl denominates as a scientifically uneducated and uncritical constituency.

In this state, and in others so far as my observation goes, since the station started a quarter of a century ago, the uneducated and uncritical farmers simply ignore the station and all it says. They do not count one way or the other in its policy, nor do they constitute or even characterize its constituency.

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#### DOES A LOW-PROTEIN DIET PRODUCE RACIAL INFERIORITY?

TO THE EDITOR OF SCIENCE: The argument usually advanced against the adoption of the "low-protein" diet plan is that the races practising it, when compared with those employing a protein-rich dietary, show in general

some points of physical inferiority or lack energy, aggressiveness or courage. To this it has been replied that the diet is the result, rather than the cause, of such racial characteristics, but by the writers of most books on nutrition and related subjects, both scientific and sensational, this reply has been either overlooked or regarded as inadequate.

As there are no doubt many people who could be benefited by the adoption of a low-protein diet, judging from the results of the studies by Chittenden and others, but who hesitate to try it because of uncertainty as to its possible unfavorable effects, it would seem that the results of new investigations bearing upon the matter should be given wider publicity than their publication in the technical journals usually affords. Accordingly, the present note is offered to call attention to recent work which apparently tends to weaken the above argument in the cases of two of the countries often used as examples of its application, namely, Japan and India.

The disease called beri-beri, a multiple inflammation of the nerves, which is prevalent in most oriental countries, though also known among the fishermen of Newfoundland and Labrador, but which has been most extensively studied in Japan, long baffling explanation, has frequently been brought forward as evidence of the insufficiency of the low-protein diet. The cause of the disease has now been discovered, and found to have no relation to the deficiency of the diet in proteins in the usual sense. For some time it had been known that the use of unhulled grains instead of those from which the bran was completely removed would prevent the disease, and further, that the bran itself contained some principle which would cure many cases that had not progressed too far, but these facts, based chiefly on experiments on animals, were discounted by those who wished to uphold the protein theory.

Finally, however, three Japanese investigators<sup>1</sup> have succeeded in isolating from rice

<sup>1</sup> Suzuki, Shamimura and Odake, *Biochemische Zeitschrift*, XLIII., 89.